CLAIMS

Now, therefore, the following is claimed:

1. A communication system, comprising:

at least one central office transceiver;

at least one intermediate terminal transceiver;

a feeder distribution interface coupled to the transceivers;

at least two customer transceivers coupled through the feeder distribution interface to the at least one central office transceiver and to the at least one intermediate terminal transceiver; and

logic configured to estimate a distance of a data path between the intermediate terminal transceiver and one of the customer transceivers, the logic further configured to adjust, based on the estimated distance, a power output of the at least one intermediate terminal transceiver in order to maintain a specified performance margin of the at least one central office transceiver.

2. The system of claim 1, wherein the logic resides within the intermediate terminal transceiver.

3. The system of claim 1, wherein the logic is configured to adjust the power output equally across a range of frequencies is reduced equally.

4. The system of claim 1, wherein the logic is configured to adjust the power output of the at least one intermediate terminal differently for different frequencies.

5. The system of claim 1, further comprising a communication device configured to automatically provide the at least one intermediate terminal transceiver with data indicative of an approximate distance between the at least one intermediate terminal transceiver and the feeder distribution interface, wherein the logic is further configured to adjust the power output of the at least one intermediate terminal transceiver based on the approximate distance.

6. The system of claim 5, wherein the communication device is further configured to automatically provide the at least one intermediate terminal transceiver with data indicative of an approximate distance between the at least one central office transceiver and the feeder distribution interface, and wherein the logic is further configured to adjust the power output of the at least one intermediate terminal transceiver based on the approximate distance between the at least one central office transceiver and the feeder distribution interface.

7. A data communication system having central office transceivers residing at a central office and intermediate terminal transceivers residing at an intermediate terminal, the central office and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, comprising:

means for determining distances between the transceivers and the feeder distribution interface; and

power reduction means for automatically reducing a transmission power of at least one of the intermediate terminal transceivers, based on the determined distances, in order to maintain a specified performance margin for the central office transceivers.

8. The system of claim 7, further comprising a means for automatically providing each of the intermediate terminal transceivers with the values indicative of an approximate distance between the central office and the feeder distribution interface and of an approximate distance between the intermediate terminal and the feeder distribution interface.

9. A system for communicating between transceivers, comprising:

a transmitter configured to transmit signals to a customer transceiver over a first communication connection that is bound within a binder; and

logic configured to estimate a distance of a data path between the transmitter and the customer transceiver based on at least one signal communicated over the data path, the logic further configured to adjust a transmission power level of the transmitter based on the estimated distance such that signals transmitted by the transmitter to the customer transceiver are spectrally compatible with signals transmitted from another transceiver over a second communication connection that is bound within the binder.

10. The system of claim 9, wherein the logic is configured to adjust the transmission power level equally for a range of frequencies.

11. The system of claim 9, wherein the logic is configured to adjust the transmission power level differently for different frequencies.

12. The system of claim 9, wherein the logic is configured to retrieve, from a look-up table and based on the estimated distance, a data value indicative of a transmission power level for the transmitter, the logic further configured to cause the transmitter to transmit at least one signal having the indicated power level based on the retrieved data value.

13. The system of claim 9, further comprising a receiver configured to receive at least one signal transmitted from the customer transceiver over the data path, wherein the logic is configured to estimate the distance based on the at least one received signal.

14. The system of claim 9, wherein the first and second communication connections are coupled to a feeder distribution interface, wherein the logic and the transmitter reside within a transceiver installed at an intermediate terminal.

15. The system of claim 14, wherein the system further comprises a communication device that is configured to provide, to the logic, data indicative of a distance between the intermediate terminal and the feeder distribution interface, and wherein the logic is further configured to determine a transmission power level for the transmitter based on the data and the estimated distance

16. A communication method, comprising the steps of:

establishing a communication session between a first transceiver and a second transceiver;

communicating, during a training phase of the communication session, at least one signal between the first and second transceivers over a first communication connection that is bound via a binder, the communicating step comprising the step of transmitting at least one signal from the first transceiver at a default power level;

estimating a distance of a data path between the first and second transceivers based on at least one signal communicated in the communicating step;

adjusting a transmission power level for the first transceiver based on the estimated distance such that signals transmitted by the first transceiver over the data path at the adjusted transmission power level are spectrally compatible with signals transmitted by another transceiver over a second communication connection that is bound by the binder; and

transmitting at least one signal from the first transceiver at the adjusted transmission power level during a data phase of the communication session.

17. The method of claim 16, wherein the adjusting step comprises the step of adjusting the transmission power level equally across a range of frequencies.

18. The method of claim 16, wherein the adjusting comprises the step of adjusting the transmission power level differently for different frequencies.

19. The method of claim 16, wherein the first and second communication connections are coupled to a feeder distribution interface, and wherein the method further comprises the steps of:

installing the first transceiver;

automatically providing, upon the installing step, the first transceiver with data indicative of a distance between the first transceiver and the feeder distribution interface,

wherein the determining step is further based on the data.

20. A method for providing spectrum management in a data communication system having central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

automatically determining at least one distance between the transceivers and the feeder distribution interface; and

automatically adjusting, based on the determined distance, a transmission power of at least one of the intermediate terminal transceivers in order to maintain a specified performance margin for the central office transceivers.

21. The method of claim 20, further comprising the step of:

automatically providing each of the intermediate terminal transceivers with values indicative of an approximate distance between the central office and the feeder distribution interface and of an approximate distance between the intermediate terminal and the feeder distribution interface.

22. The method of claim 20, further comprising the step of:

establishing a communication session between one of the intermediate terminal transceivers and one of the customer transceivers,

wherein the determining step comprises the step of estimating, based on a signal communicated between the one intermediate terminal transceiver and the one customer transceiver during the communication session, an approximate distance between the one intermediate terminal transceiver and the one customer transceiver.

23. A method of maintaining specified performance margins in a data communication system having central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

providing a table of power back-off values for adjusting transmission power levels of the intermediate terminal transceivers in order to maintain performance margins of the central office transceivers, wherein the power back-off values are functions of distances between the transceivers and the feeder distribution interface;

automatically determining distances between the intermediate terminal transceivers and the customer transceivers based on signals communicated between the intermediate terminal transceivers and the customer transceivers; and

adjusting, based on the determined distances, the transmission power levels of the customer transceivers in accordance with the values in the table.

24. The method of claim 23, further comprising the steps of:

storing the table in each of the intermediate terminal transceivers; and

automatically providing each of the intermediate terminal transceivers with values indicative of a distance between the central office and the feeder distribution interface and of a distance between the intermediate terminal and the feeder distribution interface,

wherein the determining step is based on the values provided in the providing step.

25. A method for reducing crosstalk in a data communication system having central office transceivers residing at a central office and intermediate terminal transceivers residing at an intermediate terminal, the central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

storing values indicative of an approximate distance between the central office and the feeder distribution interface and of an approximate distance between the intermediate terminal and the feeder distribution interface;

automatically determining values indicative of approximate distances between the intermediate terminal transceivers and the customer transceivers; and

reducing transmission power levels at all frequencies in the intermediate terminal transceivers in accordance with a power back-off algorithm, wherein the power back-off algorithm is responsive to the stored and determined values.

26. The method of claim 25, further comprising the step of:

automatically providing each of the intermediate terminal transceivers, upon installation of the intermediate terminal transceivers at the intermediate terminal, the values indicative of the approximate distance between the central office and the feeder distribution interface and of the approximate distance between the intermediate terminal and the feeder distribution interface.

27. A communication method, comprising the steps of:

transmitting a signal from at least one intermediate terminal transceiver through a cable to a customer transceiver, the cable coupled to a feeder distribution interface that is coupled to the at least one intermediate terminal transceiver and at least one central office transceiver, the cable propagating at least one signal transmitted from the at least one central office transceiver;

automatically adjusting a power output of the at least one intermediate terminal transceiver such that a specified performance margin of the at least one central office transceiver is maintained; and

estimating a distance between the at least one intermediate terminal transceiver and the customer transceiver, wherein the adjusting is further based on the estimated distance.

28. The method of claim 27, further comprising the steps of:

plotting a graph having axes corresponding to distances between the transceivers and the feeder distribution interface, the graph having at least one curve indicative of a level to which the power output of the at least one intermediate terminal transceiver is to be set via the adjusting step; and

linearizing the at least one curve,

wherein the adjusting step is based on the at least one linearized curve.

29. The method of claim 27, further comprising the step of automatically providing the at least one intermediate terminal transceiver with data indicative of an approximate distance between the at least one intermediate terminal transceiver and the feeder distribution interface, wherein the adjusting step is based on the approximate distance.

30. The method of claim 29, further comprising the step of automatically providing the at least one intermediate terminal transceiver with data indicative of an approximate distance between the at least one central office transceiver and the feeder distribution interface, wherein the adjusting step is further based on the approximate distance between the at least one central office transceiver and the feeder distribution interface.